

C-A OPERATIONS PROCEDURES MANUAL

ATTACHMENT

4.120.6.i 6 O’Clock (PEER 7) STAR Gas Detection Tests

C-A-OPM Procedures in which this Attachment is used.		
4.120.6		

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
_____	_____	_____	_____
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_____	_____	_____	_____

Approved: _____
Collider-Accelerator Department Chairman _____
Date

V. Castillo

4.120.6.i 6 O’Clock (PEER 7) STAR Gas Detection Tests

PASS ANNUAL ACCEPTANCE TEST PROTOCOL

Division A Software Filename and Checksum: Title: _____ Checksum: _____

Division B Software Filename and Checksum: Title: _____ Checksum: _____

Initial testing complete:

Test Team Leader’s Name (Print): _____ Life Number: _____

Test Team Leader’s Name (Sign): _____ Date: ____/____/____

Acceptance test procedure complete (following repairs and retesting if required):

Test Team Leader’s Name (Print): _____ Life Number: _____

Test Team Leader’s Name (Sign): _____ Date: ____/____/____

Test results reviewed by:

Safety Section Head’s Name (Print): _____ Life Number: _____

Safety Section Head’s Name (Sign): _____ Date: ____/____/____

Test results accepted by Radiation Safety Committee:

RSC Member’s Name (Print): _____ Life Number: _____

RSC Member’s Name (Sign): _____ Date: ____/____/____

1.1 Current Source Test of STAR West Gas Detector, 6XAS1, in Mode 8

CONN	Voltmeter to Div A: Mod 11 Input 3, 1006B	
CONN	Voltmeter to Div B: Mod 6 Input 1, 1006B	
CONN	Current Srce to Tp 3(+), Tp 4(-) 6XAS1 pcb in Div A cab 1006B	
PLACE	Peer 7 in Mode 8	
<input type="checkbox"/> VERIFY	Peer 7 is in Restricted Access	MODE 8
RAISE	Current value (~ 1.7 mA) for Level 1 response at MCR	
<input type="checkbox"/> VERIFY	Response at MCR is	LEVEL 1
RECORD	Current value	_____ mA
RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 1.4V
RAISE	Current value (~ 2.5 mA) for Level 2 response at MCR	
<input type="checkbox"/> VERIFY	Response at MCR is	LEVEL 2
RECORD	Current value	_____ mA
RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 1.6V
RAISE	Current value (~ 4.1 mA) for Alarm response at MCR	
<input type="checkbox"/> VERIFY	Response at MCR is	ALARM
RECORD	Current value	_____ mA
RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 2.0V
<input type="checkbox"/> VERIFY	Fan 6XEF1 is	ON
<input type="checkbox"/> VERIFY	Fan 6XEF2 is	ON
<input type="checkbox"/> VERIFY	Vent 6XAV1 is	OPEN
<input type="checkbox"/> VERIFY	Vent 6XAV2 is	OPEN
<input type="checkbox"/> VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/> VERIFY	Peer 7 is in Safe Mode	MODE 2
LOWER	Current value for ~ 1.6 V output for Div A & B	
<input type="checkbox"/> VERIFY	Attempt to reset Alarm at MCR	FAIL
LOWER	Current value for ~ 1.4 V output for Div A & B	
<input type="checkbox"/> VERIFY	Fan 6XEF1 is	OFF
<input type="checkbox"/> VERIFY	Fan 6XEF2 is	OFF
<input type="checkbox"/> VERIFY	Vent 6XAV1 is	CLOSED
<input type="checkbox"/> VERIFY	Vent 6XAV2 is	CLOSED
<input type="checkbox"/> VERIFY	Evac & Exp alarm	OFF
LOWER	Current value for ~ 1.0 V output for Div A & B	
RESET	Alarm at MCR	
<input type="checkbox"/> VERIFY	MCR sees 6XAS1 as	SAFE
<input type="checkbox"/>	Check acceptance of Current Source test of STAR West Gas detector, 6XAS1, in Mode 8	

1.2 Current Source Test of West Gas Detector 6XAS1 in STAR in Mode 17

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|--|--|----------------------|
| PLACE | Peer 7 in Mode 17 | |
| <input type="checkbox"/> VERIFY | Peer 7 is in Restricted Access | MODE 17 |
| RAISE | Current value (~ 4.1 mA) for Alarm response at MCR | |
| <input type="checkbox"/> VERIFY | Response at MCR is | ALARM |
| RECORD | Current value | <u> </u> mA |
| RECORD | Div A vltg: <u> </u> V Div B vltg: <u> </u> V | ~ 2.0V |
| <input type="checkbox"/> VERIFY | Fan 6XEF1 is | ON |
| <input type="checkbox"/> VERIFY | Fan 6XEF2 is | ON |
| <input type="checkbox"/> VERIFY | Vent 6XAV1 is | OPEN |
| <input type="checkbox"/> VERIFY | Vent 6XAV2 is | OPEN |
| <input type="checkbox"/> VERIFY | Evac & Exp alarm | ON |
| <input type="checkbox"/> VERIFY | Peer 7 is in Safe Mode | MODE 2 |
| LOWER | Current value for ~ 1.4 V output for Div A & B | |
| <input type="checkbox"/> VERIFY | Fan 6XEF1 is | OFF |
| <input type="checkbox"/> VERIFY | Fan 6XEF2 is | OFF |
| <input type="checkbox"/> VERIFY | Vent 6XAV1 is | CLOSED |
| <input type="checkbox"/> VERIFY | Vent 6XAV2 is | CLOSED |
| <input type="checkbox"/> VERIFY | Evac & Exp alarm | OFF |
| LOWER | Current value for ~ 1.0 V output for Div A & B | |
| RESET | Alarm at MCR | |
| <input type="checkbox"/> VERIFY | MCR sees 6XAS1 as | SAFE |
- ☐ Check for test acceptance of Current Source test of West Gas detector 6XAS1 in STAR in Mode 17

1.3 Current Source Test of West Gas Detector 6XAS1 in STAR in Mode 16

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|--|--|----------------------|
| PLACE | Peer 7 in Mode 16 | |
| <input type="checkbox"/> VERIFY | Peer 7 is in Controlled Access | MODE 16 |
| RAISE | Current value (~ 4.1 mA) for Alarm response at MCR | |
| <input type="checkbox"/> VERIFY | Response at MCR is | ALARM |
| RECORD | Current value | <u> </u> mA |
| RECORD | Div A vltg: <u> </u> V Div B vltg: <u> </u> V | ~ 2.0V |
| <input type="checkbox"/> VERIFY | Fan 6XEF1 is | ON |
| <input type="checkbox"/> VERIFY | Fan 6XEF2 is | ON |
| <input type="checkbox"/> VERIFY | Vent 6XAV1 is | OPEN |
| <input type="checkbox"/> VERIFY | Vent 6XAV2 is | OPEN |
| <input type="checkbox"/> VERIFY | Evac & Exp alarm | ON |
| <input type="checkbox"/> VERIFY | Peer 7 is in Safe Mode | MODE 2 |
| LOWER | Current value for ~ 1.4 V output for Div A & B | |

<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	OFF
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	OFF
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	CLOSED
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	CLOSED
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	OFF

LOWER Current value for ~ **1.0 V** output for Div **A & B**
RESET Alarm at MCR

<input type="checkbox"/>	VERIFY	MCR sees 6XAS1 as	SAFE
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☐ Check for test acceptance of Current Source test of West Gas detector **6XAS1** in STAR in Mode 16

1.4 Current Source Test of West Gas Detector **6XAS1** in STAR in Mode 2

<input type="checkbox"/>	PLACE	Peer 7 in Mode 17	
<input type="checkbox"/>	VERIFY	Peer 7 is in Safe Access	MODE 2
<input type="checkbox"/>	RAISE	Current value (~ 4.1 mA) for Alarm response at MCR	
<input type="checkbox"/>	VERIFY	Response at MCR is	ALARM
	RECORD	Current value	_____ mA
	RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 2.0V
<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	ON
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	ON
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	OPEN
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	OPEN
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/>	VERIFY	Peer 7 remains in Safe Mode	MODE 2

LOWER Current value for ~ **1.4 V** output for Div **A & B**

<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	OFF
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	OFF
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	CLOSED
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	CLOSED
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	OFF

LOWER Current value for ~ **1.0 V** output for Div **A & B**
RESET Alarm at MCR

<input type="checkbox"/>	VERIFY	MCR sees 6XAS1 is	SAFE
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☐ Check for acceptance of Current source test of STAR West Gas detector, **6XAS1**, in Mode 2

1.5 Current Source Test of STAR West Gas Detector, 6XAS1, in Mode 24 and Bad Sensor check

<input type="checkbox"/>	PLACE	Peer 7 in Mode 24	
<input type="checkbox"/>	VERIFY	Peer 7 is in No Access	MODE 24
<input type="checkbox"/>	RAISE	Current value (~ 4.1 mA) for Alarm response at MCR	
<input type="checkbox"/>	VERIFY	Response at MCR is	ALARM
	RECORD	Current value	_____ mA
	RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 2.0V
<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	ON
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	ON
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	OPEN
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	OPEN
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/>	VERIFY	Peer 7 remains in No Access	MODE 24
	LOWER	Current value for ~ 1.4 V output for Div A & B	
<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	OFF
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	OFF
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	CLOSED
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	CLOSED
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	OFF
	LOWER	Current value for ~ 1.0 V output for Div A & B	
	RESET	Alarm at MCR	
<input type="checkbox"/>	VERIFY	MCR sees 6XAS1 as	SAFE
	REVERSE	Current Source connections	
<input type="checkbox"/>	RAISE	Current value (~ -1.15mA) for Bad Sensor response at MCR	
<input type="checkbox"/>	VERIFY	Response at MCR is	BAD SENSOR
	RECORD	Current value	_____ mA
	RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 0.725V
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	ON
	RAISE	Current value (~ -0.03 mA) for ~ 1V output	
	RECORD	Current value	_____ mA
	RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 1.0V
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	OFF
	RESET	Bad Sensor at MCR	
<input type="checkbox"/>	VERIFY	MCR sees 6XAS1 is	SAFE
<input type="checkbox"/>	Check for acceptance of Current Source test of STAR West Gas detector 6XAS1 in Mode 24 and Bad Bad Sensor check		

1.6 Gas Activation test of STAR West Gas Detector, 6XAS1, in Mode 8

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|--|--|---------------------|
| PLACE | Peer 7 in Mode 8 | |
| <input type="checkbox"/> VERIFY | Peer 7 is in Restricted Access | MODE 8 |
| DISCONN | Current Source | |
| <input type="checkbox"/> VERIFY | Current Source | DISCONNECTED |
| SPRAY | 50% L.E.L. gas on 6XAS1 (~2 mins reaction) | |
| RECORD | Trip Level: Div A vltg: _____ V Div B vltg: _____ V | |
| <input type="checkbox"/> VERIFY | Fan 6XEF1 is | ON |
| <input type="checkbox"/> VERIFY | Fan 6XEF2 is | ON |
| <input type="checkbox"/> VERIFY | Vent 6XAV1 is | OPEN |
| <input type="checkbox"/> VERIFY | Vent 6XAV2 is | OPEN |
| <input type="checkbox"/> VERIFY | Evac & Exp alarm | ON |
| <input type="checkbox"/> VERIFY | MCR sees Peer 7 is in Safe Mode | MODE 2 |
| ALLOW | 50% L.E.L. gas dissipation (~ 2 mins) | |
| RECORD | Quiescent Vltg: Div A vltg: _____ V Div B vltg: _____ V | |
| <input type="checkbox"/> VERIFY | Fan 6XEF1 is | OFF |
| <input type="checkbox"/> VERIFY | Fan 6XEF2 is | OFF |
| <input type="checkbox"/> VERIFY | Vent 6XAV1 is | CLOSED |
| <input type="checkbox"/> VERIFY | Vent 6XAV2 is | CLOSED |
| <input type="checkbox"/> VERIFY | Evac & Exp alarm | OFF |
| RESET | Alarm at MCR | |
| <input type="checkbox"/> VERIFY | MCR sees 6XAS1 as | SAFE |
| DISCONN | Voltmeter | |
- ☐ **Check for acceptance of Gas Activation test of STAR West Gas detector 6XAS1 in Mode 8**

1.7 Current Source Test of STAR East Gas Detector, 6XAS2 , in Mode 8

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|--|--|-----------------|
| CONN | Voltmeter to Div A: Mod 11 Input 0, 1006B | |
| CONN | Voltmeter to Div B: Mod 6 Input 2, 1006B | |
| CONN | Current Srce to Tp 3(+), Tp 4(-) 6XAS2 pcb in Div B cab 1006B | |
| PLACE | Peer 7 in Mode 8 | |
| <input type="checkbox"/> VERIFY | Peer 7 is in Restricted Access | MODE 8 |
| RAISE | Current value (~ 1.7 mA) for Level 1 response at MCR | |
| <input type="checkbox"/> VERIFY | Response at MCR is | LEVEL 1 |
| RECORD | Current value | _____ mA |
| RECORD | Div A vltg: _____ V Div B vltg: _____ V | ~ 1.4V |
| RAISE | Current value (~ 2.5 mA) for Level 2 response at MCR | |
| <input type="checkbox"/> VERIFY | Response at MCR is | LEVEL 2 |
| RECORD | Current value | _____ mA |
| RECORD | Div A vltg: _____ V Div B vltg: _____ V | ~ 1.6V |
| RAISE | Current value (~ 4.1 mA) for Alarm response at MCR | |

<input type="checkbox"/>	VERIFY RECORD RECORD	Response at MCR is Current value Div A vltg: _____ V Div B vltg: _____ V	ALARM _____ mA ~ 2.0V
<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	ON
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	ON
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	OPEN
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	OPEN
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/>	VERIFY	Peer 7 is in Safe Mode	MODE 2
	LOWER	Current value for ~ 1.6 V output for Div A & B	
<input type="checkbox"/>	VERIFY	Attempt to reset Alarm at MCR	FAIL
	LOWER	Current value for ~ 1.4 V output for Div A & B	
<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	OFF
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	OFF
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	CLOSED
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	CLOSED
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	OFF
	LOWER RESET	Current value for ~ 1.0 V output for Div A & B Alarm at MCR	
<input type="checkbox"/>	VERIFY	MCR sees 6XAS2 as	SAFE

- ☐ Check acceptance of Current Source test of STAR East Gas detector, 6XAS2 , in Mode 8

1.8 Current Source Test of East Gas Detector 6XAS2 in STAR in Mode 17

<input type="checkbox"/>	PLACE	Peer 7 in Mode 17	
<input type="checkbox"/>	VERIFY	Peer 7 is in Restricted Access	MODE 17
	RAISE	Current value (~ 4.1 mA) for Alarm response at MCR	
<input type="checkbox"/>	VERIFY RECORD RECORD	Response at MCR is Current value Div A vltg: _____ V Div B vltg: _____ V	ALARM _____ mA ~ 2.0V
<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	ON
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	ON
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	OPEN
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	OPEN
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/>	VERIFY	Peer 7 is in Safe Mode	MODE 2
	LOWER	Current value for ~ 1.4 V output for Div A & B	
<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	OFF
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	OFF
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	CLOSED

<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	CLOSED
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	OFF

LOWER RESET Current value for ~ **1.0 V** output for Div **A & B**
Alarm at MCR

<input type="checkbox"/>	VERIFY	MCR sees 6XAS2 as	SAFE
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☐ **Check for test acceptance of Current Source test of East Gas detector 6XAS2 in STAR in Mode 17**

1.9 **Current Source Test of East Gas Detector 6XAS2 in STAR in Mode 16**

	PLACE	Peer 7 in Mode 16	
<input type="checkbox"/>	VERIFY	Peer 7 is in Controlled Access	MODE 16
	RAISE	Current value (~ 4.1 mA) for Alarm response at MCR	
<input type="checkbox"/>	VERIFY	Response at MCR is	ALARM
	RECORD	Current value	<u> </u> mA
	RECORD	Div A vltg: <u> </u> V Div B vltg: <u> </u> V	~ 2.0V
<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	ON
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	ON
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	OPEN
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	OPEN
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/>	VERIFY	Peer 7 is in Safe Mode	MODE 2

LOWER Current value for ~ **1.4 V** output for Div **A & B**

<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	OFF
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	OFF
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	CLOSED
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	CLOSED
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	OFF

LOWER RESET Current value for ~ **1.0 V** output for Div **A & B**
Alarm at MCR

<input type="checkbox"/>	VERIFY	MCR sees 6XAS2 as	SAFE
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☐ **Check for test acceptance of Current Source test of East Gas detector 6XAS2 in STAR in Mode 16**

1.10 Current Source Test of East Gas Detector 6XAS2 in STAR in Mode 2

<input type="checkbox"/>	PLACE	Peer 7 in Mode 17	
<input type="checkbox"/>	VERIFY	Peer 7 is in Safe Access	MODE 2
<input type="checkbox"/>	RAISE	Current value (~ 4.1 mA) for Alarm response at MCR	
<input type="checkbox"/>	VERIFY	Response at MCR is	ALARM
	RECORD	Current value	_____ mA
	RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 2.0V
<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	ON
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	ON
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	OPEN
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	OPEN
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/>	VERIFY	Peer 7 remains in Safe Mode	MODE 2
	LOWER	Current value for ~ 1.4 V output for Div A & B	
<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	OFF
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	OFF
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	CLOSED
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	CLOSED
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	OFF
	LOWER	Current value for ~ 1.0 V output for Div A & B	
	RESET	Alarm at MCR	
<input type="checkbox"/>	VERIFY	MCR sees 6XAS2 is	SAFE
<input type="checkbox"/>	Check for acceptance of Current source test of STAR East Gas detector, 6XAS2 , in Mode 2		

1.11 Current Source Test of STAR East Gas Detector, 6XAS2 , in Mode 24 and Bad Sensor check

<input type="checkbox"/>	PLACE	Peer 7 in Mode 24	
<input type="checkbox"/>	VERIFY	Peer 7 is in No Access	MODE 24
<input type="checkbox"/>	RAISE	Current value (~ 4.1 mA) for Alarm response at MCR	
<input type="checkbox"/>	VERIFY	Response at MCR is	ALARM
	RECORD	Current value	_____ mA
	RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 2.0V
<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	ON
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	ON
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	OPEN
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	OPEN
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/>	VERIFY	Peer 7 remains in No Access	MODE 24
	LOWER	Current value for ~ 1.4 V output for Div A & B	

- | | | | |
|--------------------------|--------------------|---|-------------------|
| <input type="checkbox"/> | VERIFY | Fan 6XEF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 6XEF2 is | OFF |
| <input type="checkbox"/> | VERIFY | Vent 6XAV1 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Vent 6XAV2 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | OFF |
| | LOWER RESET | Current value for ~ 1.0 V output for Div A & B
Alarm at MCR | |
| <input type="checkbox"/> | VERIFY | MCR sees 6XAS2 as | SAFE |
| | REVERSE | Current Source connections | |
| | RAISE | Current value (~ -1.15 mA) for Bad Sensor response at MCR | |
| <input type="checkbox"/> | VERIFY | Response at MCR is | BAD SENSOR |
| | RECORD | Current value | _____ mA |
| | RECORD | Div A vltg: _____ V Div B vltg: _____ V | ~ 0.725V |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | ON |
| | RAISE | Current value (~ -0.03 mA) for ~ 1V output | |
| | RECORD | Current value | _____ mA |
| | RECORD | Div A vltg: _____ V Div B vltg: _____ V | ~ 1.0V |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | OFF |
| | RESET | Bad Sensor at MCR | |
| <input type="checkbox"/> | VERIFY | MCR sees 6XAS2 is | SAFE |
- ☐ **Check for acceptance of Current Source test of STAR East Gas detector 6XAS2 in Mode 24 and Bad Bad Sensor check**

1.12 Gas Activation test of STAR East Gas Detector, 6XAS2 , in Mode 8

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|--------------------------|----------------|--|---------------------|
| | PLACE | Peer 7 in Mode 8 | |
| <input type="checkbox"/> | VERIFY | Peer 7 is in Restricted Access | MODE 8 |
| | DISCONN | Current Source | |
| <input type="checkbox"/> | VERIFY | Current Source | DISCONNECTED |
| | SPRAY | 50% L.E.L. gas on 6XAS2 (~2 mins reaction) | |
| | RECORD | Trip Level: Div A vltg: _____ V Div B vltg: _____ V | |
| <input type="checkbox"/> | VERIFY | Fan 6XEF1 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 6XEF2 is | ON |
| <input type="checkbox"/> | VERIFY | Vent 6XAV1 is | OPEN |
| <input type="checkbox"/> | VERIFY | Vent 6XAV2 is | OPEN |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | ON |
| <input type="checkbox"/> | VERIFY | MCR sees Peer 7 is in Safe Mode | MODE 2 |
| | ALLOW | 50% L.E.L. gas dissipation (~ 2 mins) | |
| | RECORD | Quiescent Vltg: Div A vltg: _____ V Div B vltg: _____ V | |

<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	OFF
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	OFF
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	CLOSED
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	CLOSED
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	OFF

RESET Alarm at MCR

<input type="checkbox"/>	VERIFY	MCR sees 6XAS2 as	SAFE
	DISCONN	Voltmeter	

☐ **Check for acceptance of Gas Activation test of STAR East Gas detector 6XAS2 in Mode 8**

1.13 Test of STAR Gas Detector 6XAS3 in Mode 8 – Div A, simulated output only

	PLACE	Peer 7 in Mode 8	
<input type="checkbox"/>	VERIFY	Peer 7 is in Restricted Access	MODE 8

CONN 24 VDC to Input 0 STAR Iface Block I/O Div A

<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	ON
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	ON
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	OPEN
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	OPEN
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/>	VERIFY	MCR sees 6XAS3 is	EVAC
<input type="checkbox"/>	VERIFY	MCR sees Peer 7 in Safe Mode	MODE 2

DISCONN 24 VDC from Input 0 STAR Iface Block I/O Div A

<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	OFF
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	OFF
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	CLOSED
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	CLOSED
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	OFF

RESET Alarm at MCR

<input type="checkbox"/>	VERIFY	MCR sees 6XAS3 is	SAFE
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☐ **Check for acceptance of test of STAR Gas detector 6XAS3 in Mode 8 – Div A, simulated output only**

1.14 Test of STAR Gas Detector 6XAS3 in Mode 8 – Div B, simulated output only

PLACE	Peer 7 in Mode 8	
<input type="checkbox"/> VERIFY	Peer 7 is in Restricted Access	MODE 8
CONN	24 VDC to Input 0 STAR Iface Block I/O Div B	
<input type="checkbox"/> VERIFY	Fan 6XEF1 is	ON
<input type="checkbox"/> VERIFY	Fan 6XEF2 is	ON
<input type="checkbox"/> VERIFY	Vent 6XAV1 is	OPEN
<input type="checkbox"/> VERIFY	Vent 6XAV2 is	OPEN
<input type="checkbox"/> VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/> VERIFY	MCR sees 6XAS3 is	EVAC
<input type="checkbox"/> VERIFY	MCR sees Peer 7 in Safe Mode	MODE 2
DISCONN	24 VDC from Input 0 STAR Iface Block I/O Div B	
<input type="checkbox"/> VERIFY	Fan 6XEF1 is	OFF
<input type="checkbox"/> VERIFY	Fan 6XEF2 is	OFF
<input type="checkbox"/> VERIFY	Vent 6XAV1 is	CLOSED
<input type="checkbox"/> VERIFY	Vent 6XAV2 is	CLOSED
<input type="checkbox"/> VERIFY	Evac & Exp alarm	OFF
RESET	Alarm at MCR	
<input type="checkbox"/> VERIFY	MCR sees 8XAS3 is	SAFE

☐ Check for acceptance of test of STAR Gas detector 6XAS3 in Mode 8 – Div B, simulated output only

1.15 Test of STAR Gas Detector 6XAS3 in Mode 17 – Divs A&B, simulated output only

PLACE	Peer 7 in Mode 17	
<input type="checkbox"/> VERIFY	Peer 7 is in Restricted Access	MODE 17
CONN	24 VDC to Input 0 STAR Iface Block I/O Div A	
CONN	24 VDC to Input 0 STAR Iface Block I/O Div B	
<input type="checkbox"/> VERIFY	Fan 6XEF1 is	ON
<input type="checkbox"/> VERIFY	Fan 6XEF2 is	ON
<input type="checkbox"/> VERIFY	Vent 6XAV1 is	OPEN
<input type="checkbox"/> VERIFY	Vent 6XAV2 is	OPEN
<input type="checkbox"/> VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/> VERIFY	MCR sees 6XAS3 is	EVAC
<input type="checkbox"/> VERIFY	MCR sees Peer 7 in Safe Mode	MODE 2
DISCONN	24 VDC from Input 0 STAR Iface Block I/O Div A	
DISCONN	24 VDC from Input 0 STAR Iface Block I/O Div B	
<input type="checkbox"/> VERIFY	Fan 6XEF1 is	OFF
<input type="checkbox"/> VERIFY	Fan 6XEF2 is	OFF
<input type="checkbox"/> VERIFY	Vent 6XAV1 is	CLOSED

<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	CLOSED
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	OFF
	RESET	Alarm at MCR	
<input type="checkbox"/>	VERIFY	MCR sees 6XAS3 is	SAFE

☐ Check for acceptance of test of STAR Gas detector 6XAS3 in Mode 17 – Divs A&B, simulated output only

1.16 Test of STAR Gas Detector 6XAS3 in Mode 16 – Divs A&B, simulated output only

	PLACE	Peer 7 in Mode 16	
<input type="checkbox"/>	VERIFY	Peer 7 is in Controlled Access	MODE 16
	CONN	24 VDC to Input 0 STAR Iface Block I/O Div A	
	CONN	24 VDC to Input 0 STAR Iface Block I/O Div B	
<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	ON
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	ON
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	OPEN
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	OPEN
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/>	VERIFY	MCR sees 6XAS3 is	EVAC
<input type="checkbox"/>	VERIFY	MCR sees Peer 7 in Safe Mode	MODE 2
	DISCONN	24 VDC from Input 0 STAR Iface Block I/O Div A	
	DISCONN	24 VDC from Input 0 STAR Iface Block I/O Div B	
<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	OFF
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	OFF
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	CLOSED
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	CLOSED
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	OFF
	RESET	Alarm at MCR	
<input type="checkbox"/>	VERIFY	MCR sees 6XAS3 is	SAFE

☐ Check for acceptance of test of STAR Gas detector 6XAS3 in Mode 16 – Divs A&B, simulated output only

1.17 Test of STAR Gas Detector 6XAS3 in Mode 2 – Divs A&B, simulated output only

<input type="checkbox"/>	PLACE	Peer 7 in Mode 2	
<input type="checkbox"/>	VERIFY	Peer 7 is in Safe Mode	MODE 2
	CONN	24 VDC to Input 0 STAR Iface Block I/O Div A	
	CONN	24 VDC to Input 0 STAR Iface Block I/O Div B	
<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	ON
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	ON
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	OPEN
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	OPEN
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/>	VERIFY	MCR sees 6XAS3 is	EVAC
<input type="checkbox"/>	VERIFY	MCR sees Peer 7 remain in Safe Mode	MODE 2
	DISCONN	24 VDC from Input 0 STAR Iface Block I/O Div A	
	DISCONN	24 VDC from Input 0 STAR Iface Block I/O Div B	
<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	OFF
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	OFF
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	CLOSED
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	CLOSED
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	OFF
	RESET	Alarm at MCR	
<input type="checkbox"/>	VERIFY	MCR sees 6XAS3 is	SAFE

☐ Check for acceptance of test of STAR Gas detector 6XAS3 in Mode 2 – Divs A&B, simulated output only

1.18 Test of STAR Gas Detector 6XAS3 in Mode 24 – Divs A&B, simulated output only

<input type="checkbox"/>	PLACE	Peer 7 in Mode 24	
<input type="checkbox"/>	VERIFY	Peer 7 is in No Access	MODE 24
	CONN	24 VDC to Input 0 STAR Iface Block I/O Div A	
	CONN	24 VDC to Input 0 STAR Iface Block I/O Div B	
<input type="checkbox"/>	VERIFY	Fan 6XEF1 is	ON
<input type="checkbox"/>	VERIFY	Fan 6XEF2 is	ON
<input type="checkbox"/>	VERIFY	Vent 6XAV1 is	OPEN
<input type="checkbox"/>	VERIFY	Vent 6XAV2 is	OPEN
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/>	VERIFY	MCR sees 6XAS3 is	EVAC
<input type="checkbox"/>	VERIFY	MCR sees Peer 7 remain in	MODE 24
	DISCONN	24 VDC from Input 0 STAR Iface Block I/O Div A	
	DISCONN	24 VDC from Input 0 STAR Iface Block I/O Div B	

- | | | | |
|--------------------------|---------------|-----------------------------|---------------|
| <input type="checkbox"/> | VERIFY | Fan 6XEF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 6XEF2 is | OFF |
| <input type="checkbox"/> | VERIFY | Vent 6XAV1 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Vent 6XAV2 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | OFF |
| | RESET | Alarm at MCR | |
| <input type="checkbox"/> | VERIFY | MCR sees 6XAS3 is | SAFE |

- ☐ Check for acceptance of test of STAR Gas detector 6XAS3 in Mode 24 – Divs A&B, simulated output only

1.19 Gas Activation test of STAR Gas-House Gas Detector, 6XAS4, in Mode 8

- | | | | |
|--------------------------|---------------|---|---------------|
| | PLACE | Peer 7 in Mode 8 | |
| <input type="checkbox"/> | VERIFY | Peer 7 is in Restricted Access | MODE 8 |
| | SPRAY | 50% L.E.L. gas on 6XAS4 (~2 mins reaction) | |
| <input type="checkbox"/> | VERIFY | LOCAL Evac & Exp alarm | ON |
| | ALLOW | 50% L.E.L. gas dissipation (~ 2 mins) | |
| <input type="checkbox"/> | VERIFY | LOCAL Evac & Exp alarm | OFF |

- ☐ Check for acceptance of Gas Activation test of STAR Gas-House Gas detector 6XAS4 in Mode 8

END OF TEST PROCEDURE

TTL: Sign for completion of initial testing: _____

Date: ____/____/____

TTL: Sign for completion of final testing: _____

Date: ____/____/____